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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/771,980	02/03/2004	Denis J. Connor	6454-67823-01	3577
24197 7590 04/30/2007 KLARQUIST SPARKMAN, LLP 121 SW SALMON STREET SUITE 1600 PORTLAND, OR 97204			EXAMINER YOUNG, NATASHA E	
			ART UNIT 1709	PAPER NUMBER
			MAIL DATE 04/30/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/771,980	<b>Applicant(s)</b> CONNOR ET AL.	
	<b>Examiner</b> Natasha Young	<b>Art Unit</b> 1709	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 03 February 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 - 10 is/are rejected.
- 7) ☒ Claim(s) 9 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>21/11/2005, 27/09/2004</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Specification***

The following title is suggested: Spacerless Parallel Passage Contactor.

### ***Claim Objections***

Claim 9 is objected to because of the following informalities: Claim 9 is dependent upon itself. Appropriate correction is required. Suggestion of claim 9 dependent upon claim 8 is made.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-4 and 6-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Keefer et al (US 2002/0022146 A1) in view of Schwalbe et al (EP 1 123 734 A2).

Regarding claim 1, the Keefer et al reference teaches parallel passage contactor comprising multiple adjacent layers of sheet material, said sheet material comprising perforated openings arranged in a regular pattern and aligned in adjacent layers of sheet material overlap to form connected substantially continuous flow passages (see Abstract; paragraph 0003).

The Keefer et al reference lacks a spacerless plate assembly or openings in the sheet material.

The Schwalbe reference teaches a spacerless plate assembly and allows for changing the pattern and number of openings in the simple plates that are used (see Abstract).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the structure of the Keefer et al reference with a spacerless plate assembly of Schwalbe et al reference (see Abstract) to reduce cost associated with the precision and accuracy required with the configuration of spacers in the plate assembly (see Keefer et al paragraphs 19 and 23). The openings offer added

flexibility in operations, which would utilize the invention (see Schwalbe et al reference, Abstract).

Claim 2 is dependent on claim 1 such that the reasoning used for rejecting claim 1 will be used for claim 2. Regarding claim 2, the Keefer et al reference teaches the sheet material comprises thin adsorbent sheet material comprising at least one active adsorbent material (see paragraph 0004).

Claim 3 is dependent on claim 2 such that the reasoning used for rejecting claim 2 will be used for claim 3. Regarding claim 3, the Keefer et al reference teaches the active adsorbent material is chosen from the list comprising: molecular sieves, carbon adsorbents, alumina adsorbents, and silica adsorbents (see paragraph 0030).

Claim 4 is dependent on claim 1 such that the reasoning used for rejecting claim 1 will be used for claim 4. Regarding claim 4, Keefer et al teaches the contactor is adapted for use as an adsorber bed in a pressure swing adsorption process (see paragraph 0004).

Claim 6 is dependent on claim 1 such that the reasoning used for rejecting claim 1 will be used for claim 6. Regarding claim 6, the Keefer et al reference teaches the sheet material comprises thin catalyst support sheet material comprising at least one active catalyst material (see paragraph 0030).

Claim 7 is dependent on claim 6 such that the reasoning used for rejecting claim 6 will be used for claim 7. Regarding claim 7, Keefer et al teaches the contactor is adapted for use as a catalyst bed in a catalytic reaction process (see paragraph 0004).

Claim 8 is dependent on claim 1 such that the reasoning used for rejecting claim 1 will be used for claim 8. Regarding claim 8, the Keefer et al reference teaches the sheet material comprises thin heat conductive sheet material (see paragraph 0032).

Claim 9 is dependent on claim 8 such that the reasoning used for rejecting claim 8 will be used for claim 9. Regarding claim 9, the Keefer et al reference teaches the thin heat conductive sheet material comprises metallic foil (see paragraph 0032).

Claims 5 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Keefer et al (US 2002/0022146 A1) and Schwalbe et al (EP 1 123 734 A2) as applied to claim 1 and 6 above, and further in view of Perry's Chemical Engineer Handbook, Seventh Edition (1997).

Regarding claim 5, Keefer et al does not teach the contactor is adapted for use as an adsorber bed in a temperature swing adsorption process.

Perry's Chemical Engineer Handbook, Seventh Edition (1997) teaches adsorber bed for use in a temperature swing adsorption process (see Chapter 16 page 48 and 49).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Keefer et al reference to include the use of the absorber bed in a temperature swing adsorption process to extend the use of the contactor to include drying, sweetening, and removal of many inorganic pollutants (see Perry's Chemical Engineer Handbook Chapter 16, page 49).

Regarding claim 10, the Keefer et al reference does not teach the contactor is adapted for use as a heat exchange core for transferring heat to or from at least one fluid flowing within the flow passages of the contactor.

Perry's Chemical Engineer Handbook, Seventh Edition teaches the contactor is adapted for use as a heat exchange core for transferring heat to or from at least one fluid flowing within the flow passages of the contactor (1997) (see Chapter 16, page 55, 2<sup>nd</sup> column, 1<sup>st</sup> paragraph).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Keefer et al reference to include the use of the contactor as a heat exchange core for transferring heat to or from at least one fluid flowing within the flow passages of the contactor to extend the use of the contactor to included desiccant cooling which is a means for more efficiently providing air conditioning for enclosures such as supermarkets, ice rinks, hotels, and hospitals.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Coellner et al (US 5,733,451).

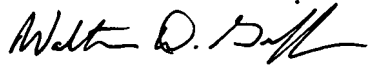
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Natasha Young whose telephone number is 571-270-3163. The examiner can normally be reached on Mon-Fri 7:30-5 (alternate Fri off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Walter Griffin can be reached on 571-272-1447. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1709

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

NY



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SUPERVISORY PATENT EXAMINER